ELITE SENSORS

THE FORMULA FOR SUCCESS

Bespoke Sensors and Interfaces for your Installations









BESPOKE DESIGN







Bespoke Engineering is at the heart of what we do at ESL. While standard products may meet many demands, harsh environments and application-specific needs often require a tailored approach.

ENGINEERING EXPERTISE

By combining our expertise in sensor technology, electronics, and mechanical design, we partner with customers to understand their technical, operational, and environmental challenges, developing customized solutions, from simple mechanical modifications to fully customised sensing and control systems, that precisely meet their performance requirements.

IN-HOUSE DEVELOPMENT & MANUFACTURING

Our engineering team manages every aspect of the design process using advanced 3D CAD software and state-of-the-art PCB design tools. With our in-house capabilities covering concept development, prototyping, testing, validation, and manufacturing, we deliver rapid development, full quality control, maximum flexibility and complete traceability throughout the project.

TYPICAL PROJECTS

- Mechanical Modifications to Standard Products
- Custom Sensor Housings and Mounting Arrangements
- Specialised Electronic Interfaces and Control Units
- Application-Specific Signal Conditioning
- Integrated Sensor and Monitoring Systems
- Complete Custom-Engineered Sensing Solutions

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BESPOKE DESIGN | RAPID DEVELOPMENT | COMPLETE QUALITY CONTROL | MAXIMUM FLEXIBILITY

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SPEED SENSORS





DIFFERENTIAL HALL EFFECT (DHE)

- Operates up to 175°C (347°F)
- Tolerant to changing air gaps
- Operating frequency 15Hz to 20kHz
- Applications: wheel speed, launch control

VARIABLE RELUCTANCE

- Operates up to 200°C (392°F)
- Passive sensor
- High phase accuracy
- Applications: crank & cam detection

ZERO SPEED HALL EFFECT

- Operates up to 150°C (302°F)
- Operating frequency 0Hz to 15kHz
- Applications: cam detection, gearbox input & output shaft speed

POSITION SENSORS







ROTARY HALL EFFECT (RHE)

- Non-contact (no wear). Can be offered with a shaft to replicate potentiometer
- Operates up to 150°C (302°F)
- Operates with 5V (ratiometric) or 7 to 28V supply (specified at time of order)
- Measurement angle configurable up to 360°
- Applications: throttle pedal, throttle, gearbox drum angle, steering, suspension

LINEAR HALL EFFECT (LHE)

- Short stroke operates up to 175°C (347°F)
- Long stroke operates up to 125°C (257°F)
- Operates with 5V (ratiometric) or 7 to 28V supply (specified at time of order)
- Measurement ranges from 5mm to 180mm
- Applications: brake master cylinder stroke, damper displacement

LASER

- Two standard ranges available 60 to 260mm, 100 to 600mm (other ranges available on request)
- Operates up to 100°C (212°F) short term
- Protective window available
- Measurement rates up to 4kHz
- Analogue or CAN2.0 output
- Applications: vehicle ride height set up

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INERTIA SENSORS



1 AXIS ACCELEROMETER

- Operates up to 150°C (302°F)
- Configurable G-range and output filter (specified at time of order)
- Applications: hub acceleration, vehicle dynamics

3 AXIS ACCELEROMETER

- Operates up to 100°C (212°F)
- Configurable G-range up to ±250g and output filter (specified at time of order)
- Analogue 0 to 5V output or CAN2.0/CANFD
- Active thermal compensation
- Applications: chassis acceleration, vehicle dynamics

3 AXIS ACCELEROMETER – HIGH FREQUENCY, HIGH G

- Frequency response 2Hz to 15kHz
- Ranges available: ±25g, ±50g, ±100g, ±200g, ±500g, ±1000g and ±2000g
- Analogue 0 to 5V output
- Applications: vibration analysis

PRESSURE SENSORS



PRESSURE SENSORS – ALL MEDIA

- Operates up to 175°C (347°F)
- All media compatibility - stainless steel diaphragm isolates silicon
- Pressure ranges from 1.6 bar to 650 bar (23 PSI to 9427 PSI)
- Available with analogue 0 to 5V output or mV output
- Combined temperature and pressure (Pt1000)
- Applications: all media pressure measurement (fuel, oil, hydraulic fluid, water etc)

LEVEL SENSORS



FLUID LEVEL SENSORS

- Operates up to 125°C (257°F)
- Ranges available from 100mm to 500mm+
- Thermally compensated
- GUI provided for customer calibration
- Applications: fuel level, oil level, coolant level

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TEMPERATURE SENSORS



RESISTANCE TEMPERATURE DETECTORS (RTD)

- RTD (Pt100, Pt1000, NTC) sensing elements
- Variants specifically designed for air, fluid and surface temperature measurement
- Available with operating temperatures up to 300°C (572°F)
- K-type thermocouples
- Applications: air, fluid, brake calliper

THERMOCOUPLES

- Available as J or K-type
- Variants specifically designed for exhaust measurement
- Fast response
- Available with operating temperatures up to 1200°C (2192°F)
- Applications: exhaust gas temperature

THERMAL CAMERA

- Internal logging for over 24 hours (32Gb capacity)
- Radiometric 120 x 84 pixels
- 10Hz frame rate
- Selectable 32 pixels real time monitoring over CAN
- Logging start trigger, available as an input pin or over CAN
- USB download
- Applications: tyre, brakes, radiator and heat exchanger mapping

INFRA-RED (IR)

- Non-contact measurement
- Ambient temperature compensation
- Analogue 0 to 5V output
- Applications: track temperature

ENVIRONMENTAL SENSORS



CARBON MONOXIDE MONITOR

- Carbon monoxide monitoring
- 2 x K-type thermocouple input
- Supports CAN2.0 and CANFD
- Applications: driver safety

AIR FLOW MONITOR

- Carbon monoxide monitoring
- Air velocity and direction
- Air humidity
- Air temperature
- Air pressure
- Supports CAN2.0 and CANFD
- Applications: cockpit monitoring

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INTERFACE UNITS







CAN INTERFACES

- Operates up to 125°C (257°F)
- Simultaneous sampling
- Synchronisation input for multi-unit simultaneous sampling
- Selectable CAN ID and Tx rates
- Free configuration GUI available
- Applications: engine or chassis to increase I/O capacity

ANALOGUE/ PT1000 (OR PT100) TO CAN

- 16 inputs that can be individually configured as 0-5V analogue or Pt1000 (or Pt100)
- Supports CAN2.0 and CANFD

ANALOGUE TO CAN

- 4 inputs that can be individually configured as 0-5V analogue
- Supports CAN2.0 and CANFD
- Sample rate configurable for each channel (up to 1kHz)

K-TYPE TO CAN

- Available with 4 or 12 channel K-type thermocouple inputs
- Supports CAN2.0 and CANFD

LVDT TO CAN

- 6 LVDT inputs
- Configurable sensor drive voltage and frequency

MIXED SIGNAL TO CAN

- 4 digital, 8 analogue or Pt1000 and 4 K-type thermocouple inputs
- Supports CAN2.0 and CANFD

TTL TO CAN

- 16 TTL sensor inputs, providing a frequency output over CAN
- Supports CAN2.0 and CANFD

SINGLE CHANNEL INTERFACES

- Available as a small online unit or as a PCB fitted in the connector boot
- Applications: when specific ECU interfaces are not available

PT1000

- 2 wire Pt1000 input to linearised 0-5V analogue output
- Selectable measurement temperature range (defined at time of order)

K-TYPE

- 2 wire thermocouple to linearised 0-5V analogue output
- Selectable measurement temperature range (defined at time of order)

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COMMUNICATION BRIDGES



CAN BRIDGE

- Fully configurable in provided GUI
- 2 x Galvanically isolated CAN channels, protecting against physical bus damage
- Supports CAN2.0 and CANFD
- Supports extended CAN messages
- Ability to filter wanted or unwanted messages in either or both directions
- Ability to reduce message rates of specific CAN ID's
- Translate between different baud rates
- Translate between CAN and CANFD
- Error messages on 1 bus will not be passed to the other

CAN LOGGER

- Fully configurable in provided GUI
- 2 x Galvanically isolated CAN channels, protecting against physical bus damage
- Supports CAN2.0 and CANFD
- Supports extended CAN messages
- Ability to filter wanted or unwanted messages
- Ability to reduce message rates of specific CAN ID's
- 128GB logging memory
- Ethernet T1 off load

ARCNET TO ETHERNET BRIDGE

- Fully configurable in provided GUI
- Supports CAN2.0 and CANFD
- Configuration and diagnostics via ethernet or CAN

MOTOR CONTROLLERS



12V BLDC MOTOR CONTROLLER

- Supports CAN2.0 and CANFD
- Control and configuration using CAN
- Optional PMW control
- Sensor or sensor less control
- Motor configuration using GUI (current, poles Kv value etc)
- Applications: pump and actuator control

UNIT CONFIGURATION SOFTWARE

CONFIGURATION SOFTWARE

- Unit configuration over CAN or Ethernet-T1
- Data offload or thermal camera and logger
- Data conversion
- Unit diagnostics
- Data viewer
- Supports a PCAN-USB

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